The Cary Arboretum

of The New York Botanical Garden

A Newsletter published for Friends of the Arboretum
by the Public Affairs Department.

November - December 1977

Box AB
Millbrook, N.Y. 12545

Volume III, Number 6

Open House and Holiday Plant Sale at Gifford House December 4

Gifford House, October 1977. *Photo by Peter Dykeman.*

Gifford House, the Arboretum's new Education and Visitor Center on Sharon Turnpike, will be the scene of a pre-holiday plant sale on Sunday, December 4, from 1:00 to 5:00 p.m.

During the sale, Gifford House will also be open for tours so that visitors may see the nearly-completed work of refurbishing the handsome Federal-style brick building for its new role.

The sale will feature very special varieties of plants grown and gathered by the Arboretum's horticultural staff.

All members of the Friends of the Arboretum and other readers of this newsletter are invited. Your guests will be most welcome also.

Mrs. Sally Gifford O'Brien, who grew up in the house, and her husband Bill will be on hand to answer visitors' questions about the historic building. Paintings of scenes around the Arboretum by local artists, including Ruth Brunstetter and Nick Lomangino, will be on display.

The renovation work has turned the former Gifford residence into a well equipped Education and Visitor Center. The main floor contains a lecture room accommodating 50 persons, a laboratory classroom with space for 20 students, an information center and space for a gift shop, and a large laboratory wing with desks, sinks and other equipment to accommodate 15 students. This room also contains an autoclave, refrigeration equipment, a drier, and a large old-fashioned wood stove for use in courses such as preparation of wild foods and natural dyeing. A sun porch has been remodeled as an all-weather plant room.

The second floor contains offices, a teachers resource center, a student lounge with kitchenette and a special room for use of Friends of the Cary Arboretum. The third floor has a photographic darkroom and other rooms for graphics preparation, display equipment preparation and storage.

In This Issue:

Robert Hebb reports on plant collecting in Soviet Asia.

"A Horticulturist's Paradise!"

Wrapping Greenhouses in Plastic

The Arboretum is wrapping its large greenhouses in plastic as a way of saving heat. In the photograph, David Bulkeley, greenhouse gardener, shows secretary Janice Clairborne how sheets of 6 mil thickness plastic are used to form air pillows on the outside of one of the Arboretum's two greenhouses.

A 9 watt electric fan is used to keep the plastic pillow gently inflated. Tests have shown that the pocket of cold air over the glass panels will reduce heat load by 55 percent, and significantly cut cooling costs in the summertime.

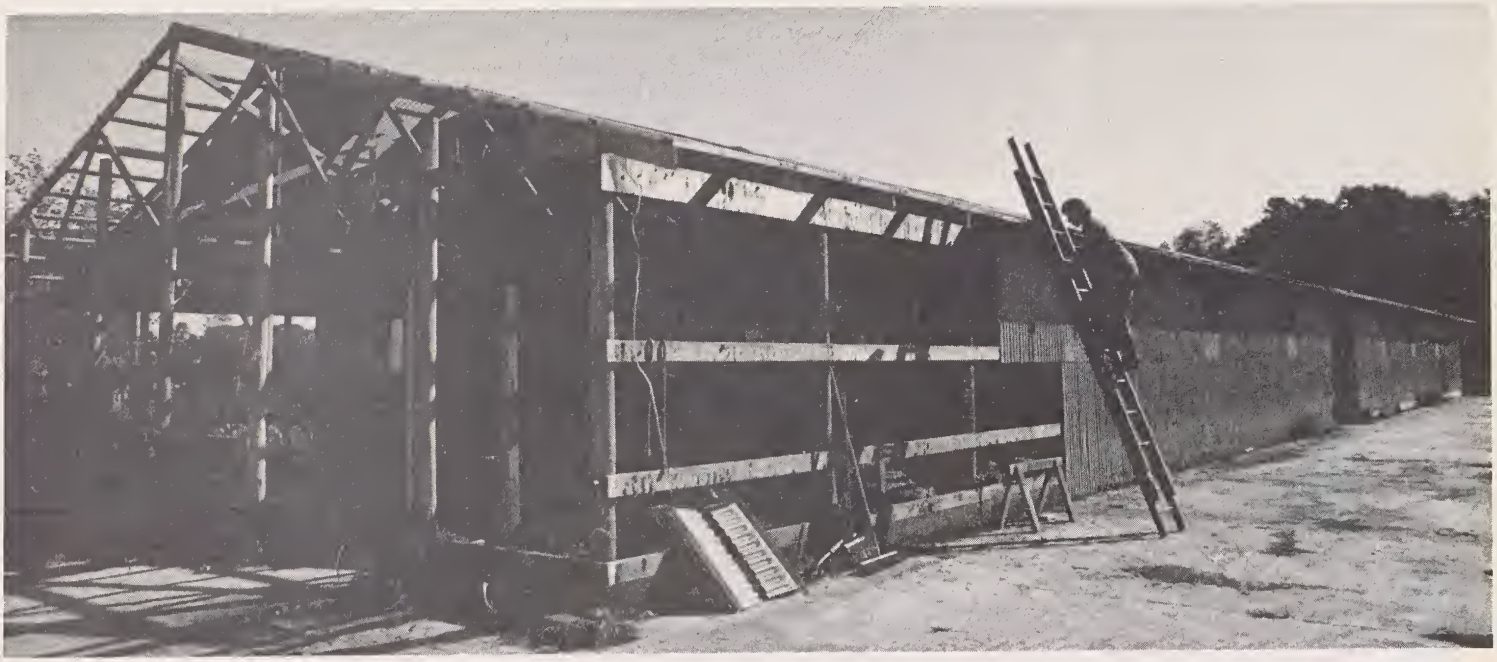
The Arboretum's smaller greenhouse, which is 25 by 120 feet in area, has been completely encased in the double-layered plastic. In the larger greenhouse, 52 by 160 feet, a dropped ceiling of plastic is employed, hung from ceiling struts. The plastic cover, left open on hot days, but pulled closed on cloudy days and at night, is expected to reduce heat loads in that building by 40 percent.

The plastic has to be left open during winter storms to allow snow and ice to melt from the glass roof. The insulation program for both greenhouses consumed 8,000 square feet of plastic.

Winfried Schubert, the Arboretum's manager of operations, says the principles used by the Arboretum for conserving energy can be easily applied by the average private greenhouse owner. He offers to explain the insulation methods to anyone interested in calling him at the Cary Arboretum.

Photo by Gary Griffen

Arboretum Training CETA Workers



Pole barn, 48 by 150 feet in area, is being moved by CETA employees assigned to the Cary Arboretum from a farm in Lithgow to the Arboretum's grounds in Millbrook. The barn, which has 65 supporting poles and is covered by corrugated, galvanized tin, used to be home to a herd of cows. The Arboretum will use it to garage vehicles.

The regular Arboretum staff has been considerably enlarged by the addition of 21 CETA employees, under a federally funded program supported by Hudson Valley Opportunities Industrialization Center.

CETA is an acronym for Comprehensive Employment and Training Act, which furnishes Federal funds to create jobs and to provide employment training in counties with excessive unemployment.

The newly hired CETA recruits are working as trainees in gardening, land surveying, carpentry, painting, and botanical research.

One of the major projects being carried out with CETA help is dismantling of a 150-foot pole barn from an estate in Lithgow and reassembling it at the Arboretum. The corrugated tin barn, formerly used as a cow barn, will house some of the Arboretum's fleet of 19 trucks, other work vehicles, and cars. It will be located on Fowler Road.

Four CETA employees are working on the pole barn project, supervised by one Arboretum staff member, Thomas Allen, a carpenter.

Making Amaryllis Flower Again

by Paul E. Mihan, Plant Propagator

Amaryllis is technically a South African bulbous herb belonging to the family Amaryllidaceae. The genus Amaryllis has large, showy lily-like flowers on a tall stalk. The plants bloom prior to the appearance of the long strap-shaped leaves. In this climate the Amaryllis is a tropical potted plant for indoor culture. As a flowering plant, the Amaryllis is a beautiful bright spot in any home during the dreary months of late winter. However, once the plant is finished blooming, it offers little interest as a foliage plant and, unless it is given a rest period, will never flower again.

The Amaryllis plant you purchased last winter or received as a gift had a large, well-formed bud pushing up through the middle of its bulb. It grew well and flowered in March. After flowering was completed, you cut the old flower stalk off and allowed the plant to grow on as a foliage house plant all summer and fall. What do you do now?

With the first frosts in the fall, stop watering your Amaryllis plant. The Amaryllis needs a minimum of two to three months' rest period in the winter to set or develop a new bud for flowering. Without this dormant rest period, it will never flower.

Leave the plant in its pot and put it in a semi-warm place (55-60°F), and do not water it for a minimum of two months. If you have a warm greenhouse, the plants can be laid on their sides under a greenhouse bench. Sunlight is not important, but warmth and dryness are. As the foliage naturally turns yellow and dies, cut the foliage off one inch above the top of the bulb.

After two months take the plant out of its pot, remove the top one-and-one-half inches of soil and replace with new soil. Fertilize the plant, put it in a warm part of the house with good sunlight, and start watering it again. Fertilize Amaryllis and other house plants with a mild solution of a water-soluble fertilizer, being careful to follow directions accompanying the product. Water Amaryllis and most other house plants thoroughly when they approach complete dryness. Then leave the plants alone until they reach this dry point again. In about one to two months your Amaryllis should be in full flower.

If you treat your plant this way each year and repot it as it requires a larger pot, it should grow well and provide gorgeous flowers every winter for many years to come.

A Horticulturist's Paradise!

by Robert S. Hebb, Horticulturist,
Cary Arboretum

To be among a group of the first Americans in history to set foot in an entirely new area is a rare and thrilling experience indeed. When one is also a horticulturist intent upon introducing new or rare species of plants for cultivation and this new area is a natural wild garden of tulips, crocuses, iris, columbines, poppies, roses, apples, almonds, pomegranates, pears, pistachios, cherries, grapes, and walnuts, then that person might truly believe that the Garden of Eden has been re-discovered! Such were my feelings again and again in September as I climbed mountains and visited nature preserves in Central Asia in the Soviet Republics of Uzbekistan, Tadzhikistan, and Kirghizia. This extraordinary trip was the second in a series of 10 proposed joint Soviet-American botanical expeditions to diverse geographical regions of the Soviet Union, and followed a similar American-Soviet collecting expedition to the Rocky Mountains during July and August, in which I also participated.

The expeditions are part of a wide-ranging series of bi-national scientific exchanges between the U.S.A. and the U.S.S.R. The purpose of the botanical expeditions, which are coordinated for the U.S. side by Dr. Thomas Elias of the Cary Arboretum, is to allow American and Soviet botanists to study the respective floras; to collect botanical specimens, seeds, and living plants; to study methods of protection and preservation of rare and endangered plant species; and to organize joint research programs with colleagues in the two countries.

My American comrades on the trip were Dr. Theodore Crovello, Chairman of the Biology Department, University of Notre Dame, and Dr. Dieter Wilken, Botany Department, Colorado State University at Fort Collins. Dr. Crovello, who acted as leader of our delegation, has done considerable work in applying computer technology to problems of plant classification and has a special interest in plants of the mustard family in Central Asia. Dr. Wilken's interest was to study relationships between the floras of Central Asia and the Rocky Mountains and to collect herbarium specimens for Colorado State University and the New York Botanical Garden. My own role was that of seed and plant collector for the expedition. I must express my heartfelt thanks to Drs. Wilken and Crovello for their many hours of enthusiastic and patient aid in seed collecting, often under tiring field conditions, which helped produce the 325 lots of seeds, 17 lots of bulbs, and 25 species of living plants which are now being carefully processed and cared for at the Arboretum.

Helpful Hosts

My thanks must also be expressed to our excellent hosts, guides, and firm friends: Dr. Valery Nekrasov, Senior Scientist in charge of the Seed Department, Main Botanical Garden, Moscow; Dr. Lilian Plotnikova, Senior Scientist and Dendrologist with special interest in the woody flora of the Soviet Far East, Main Botanical Garden, Moscow; Dr. Igor Belolipov, Senior Scientist, Botanical Garden of the Uzbek Academy of Sciences, Tashkent; and Mr. Ruslan Pushkin, Junior Scientific Worker, Main Botanical Garden, Moscow. Valery acted as our leader with inexhaustible energy, made all the complex arrangements to get us about Central Asia, kept us on schedule, and solved all our numerous small problems. Lilian's quiet patience, knowledge of the woody flora, marvellous culinary skills, and excellent nursing of our stomach complaints (which are the inevitable result of a visit by a foreigner to Central Asia) can never be forgotten. Igor's perennial good humor, intimate and formidable knowledge of the flora of Central Asia, and ceaseless help in collecting and identifying plants in the field contributed in very large measure to the success of our expedition. Ruslan, youngest member of the group, and accomplished guitarist and vocalist in three languages, kept us constantly entertained and was a valuable help with the necessary camping chores. Drs. Nekrasov, Plotnikova, and Belolipov represented the Soviet Union in the expedition to the Rockies, so we were all firm friends long before I arrived in the U.S.S.R.

Two conifers of species probably not cultivated in the United States frame Lake Sary Chelec at dawn in the Kirgizskiy Khrebet range of the West Tien Shan Mountains, Kirghizia. Tree on left is Abies semonovii; right, Picea tianschanica. Photo by Robert Hebb.

To recount all the places visited and all the plants collected during our 45 days in the Soviet Union is, unfortunately, impossible here. The following brief glimpses will, I hope, give some impression of our incredible journey. After an orientation session and all-too-brief introduction to Moscow and beautiful Red Square at night, we proceeded immediately to our main objective. A five hour jet flight through three time zones to Dushanbe (formerly Stalinabad), capital of the Republic of Tadzhikistan, served as ample introduction to the incredible vastness and variety of the Soviet Union. Tadzhikistan is situated directly north of Afghanistan and the native Tadzhik people (men in characteristic Moslem hats and the beautiful women in colorful silk striped dresses) are of Iranian origin and speak a Persian dialect. Using Dushanbe as a base, and with the friendly assistance of numerous staff of the Dushanbe Botanical Garden, we made two collecting excursions southward into the Pamir-Alay Mountains. These are the highest mountains in the Soviet Union, containing the peaks Mt. Communism – 24,590 ft. (formerly Mt. Stalin) and Mt. Lenin – 23,363 ft.

Although the scenery in these mountains is awesome, we were unprepared for the incredible dryness of the area, and equally unprepared for the "Afghaniz" which is the local name for an all-pervasive dust storm which sweeps up the north-south valleys from Afghanistan. Natural forests were cleared from this area more than a century ago, and as our visit coincided with the driest part of the year (virtually no precipitation from June to November) our impression was of a parched and arid landscape. Nonetheless, Soviet progress in vast irrigation projects throughout Central Asia has allowed a very intensive agriculture in these areas, and large state fruit farms, seemingly endless plains devoted to the culture of cotton and silk, and extensive attempts at re-forestation were much in evidence. Despite the dryness and seemingly endless deposits of difficult-to-traverse loess soils, I have never eaten such good fruit, especially grapes in almost endless variety as we had in Central Asia.

Particularly interesting botanical finds around Dushanbe include: *Polygonum baldschuanicum* – the Silver Fleece vine collected from where it was first discovered, *Spiraea baldschuanica* – an ornamental dwarf spiraea, *Celtis caucasica* – a very interesting member of the elm family with handsome yellow fruits, several species of rose, two species of tulips, pistachio, walnuts, two species of maple which may not be in cultivation in this country, the very handsome autumn flowering *Clematis orientalis* with yellow flowers, and species of honeysuckle and cotoneaster.

The culmination of our visit to Tadzhikistan was a trip over the Shar Shar Pass and along

the valley of the Vakhsh River to see construction of the awesome Nurek Dam – highest in the world, which is now three-fourths complete and will eventually tower to 317 meters (the Aswan High Dam in Egypt is only 111 meters). The dam is creating a lake (The Nurek Sea) which is now about 60 km. long and about 300 meters deep. Our special treat was to be allowed to jump off the edge of the dam into 300 meters of the warmest, bluest, and most refreshing water (after the Afghaniz and all the dryness) I have ever been in. This was followed by a boat trip down the sea and a chance to see the enormous hydroelectric plants at the base of the dam.

Tashkent and Samarkand

From here we proceeded to the Republic of Uzbekistan and Tashkent, its beautiful and modern capital of 1.5 million people. This city of broad avenues and countless trees has been nearly completely re-constructed after the devastating earthquake of 1958. During a day-long tour of the Tashkent Botanical Garden, I was particularly impressed with the efforts to cultivate rare endemic native plants, and had the opportunity to study methods of propagating woody plants out-of-doors without the aid of controlled greenhouse conditions. I was very grateful to the staff of the garden to be presented with living specimens of a vary rare artificial hybrid between *Catalpa bignonioides* and *Chilopsis linearis* with exquisite large clusters of pink flowers. Should this prove to be hardy in our area, it undoubtedly will become a highly prized ornamental flowering tree. To the best of my knowledge this is the first introduction of this hybrid into the U.S.A., and the Arboretum will be propagating it in large numbers to share with other arboreta, botanical gardens, and nurserymen.

Robert Hebb uses local transportation near the Chatkal Reserve in Uzbekistan. Photo by Ted Crovello.

Our next stop was Samarkand, city of Genghis Khan, Alexander the Great, and Tamerlane. Although our reason to be here was to study the desert flora around the city, I must freely admit that visiting the wonderful mosques, all being faithfully and carefully restored, and photographing the native people in the colorful bazaar was of greater interest to me! About 40 km. south-west of Samarkand we stayed for two nights at a Soviet Pioneer Camp. (Pioneers are roughly equivalent to our Boy and Girl Scouts.) The camp is located just below the Aman Kutan Pass where Alexander the Great brought his elephants over the mountains. The area proved to be of great interest to me as it is now the second time I have done botanical collecting in such an historic pass (the first being the Grand St. Bernard where Hannibal brought elephants over the Alps.) Aman Kutan is home for *Tulipa fosteriana* (Red Emperor Tulip), *Tulipa kaufmanniana* (Water lily tulip), and *Rosa persica.*

Our next stop was Bukhara, another ancient Moslem city and formerly the center of the large oriental rug industry. Again I must admit that the mosques, the people, and the old quarter of the city with its narrow streets and mud construction walls and houses were of greater interest than the dry surrounding deserts which surely could yield very few, if any, plants which will be hardy at the Arboretum!

To the Tien Shan Mountains

If all the above sounds exciting, it was but a prelude for our main collecting trip to areas of the West Tien Shan mountains in Kirghizia and Uzbekistan. The Tien Shans stretch all the way from northern Tadzhikistan through the Uzbek and Kirghiz Republics, and through eastern Kazakhstan east of Lake Balkhash into China. The area is roughly north and east of Sinkjang province in China, and it seemed incredible to us to be within only a hundred miles or so of the border, well beyond any Soviet approved tourist route. Two of the three forest preserves on our itinerary had never been visited by Americans before. Clearly, the study and collection of plants was our major preoccupation, but this was closely followed by observation of the native people and their way of life in the remote mountain villages. Although not poor, the people lead a relatively simple life, based mostly around agriculture, and the villages with their narrow streets and old style mud construction walls, and buildings with immense piles of hay stored on the roofs, seemed quaint by our own standards. Moslem customs and dress prevail, particularly with the older people. Daily we were treated to sights such as old men with long beards wearing turbans and long black gowns with high leather boots; women in colorful silk attire with their heads (and sometimes their faces) partly wrapped and covered by shawls, frequently carrying immense loads on their heads; the beautiful children with large round faces and distinctly oriental expression, sometimes playing barefoot in the streets, frequently traveling to and from school in their neat uniforms and red kerchiefs; donkeys being ridden everywhere, often carrying immense loads of hay, frequently braying all night too; and dust, dust, dust everywhere. The impressions are nearly endless, and it was very easy to believe that we had come more than half way round the world to an area infrequently seen by American eyes.

Our most beautiful, and perhaps most interesting area for collecting was the Sary Chelec Preserve located in the Kirgizskiy Khrebet Range of the Tien Shans roughly 90 km. south of the city of Namangan. Base camp was at a large lake surrounded by forests of fir and spruce *(Abies semenovii* and *Picea tianschanica)* with incredible views of sharply rising mountain peaks, very reminiscent of the Tetons in our own country. Here we encountered vast forests of walnut *(Juglans regia)* and an interesting species of cherry *(Prunus sogdiana)* which occurs in the wild with fruits in over 20 color forms ranging from yellow through all shades of orange and red to deep black. These were the most unbelievably tasty large cherries I have ever eaten and make a fantastic jam. Nearly all the color forms are represented in my collections – one day gardens in our area may be growing them as a novel fruit for the home garden. The thrill of collecting in this area is difficult to describe, so many species were familiar to me as old garden friends, and so many were brand new. One typical day we walked through an area which contained peonies, several species of tulips, iris, roses, yellow delphinium, primroses, and ornamental onions whose flower stalks are 4-5 feet tall! Truly a botanical and horticultural paradise.

Intensive collecting in the Arslanbob Reserve (Bau-Bosh-Ata Range) and the Chatkal Reserve (Chatkal'skiy Range) yielded the following treasures, all of which will now be cultivated at the Arboretum: two highly interesting tree-like species of Juniper, several species of contoneaster, a beautiful mountain ash with wonderful bright pink fruits, several different maples, about 10 species of rose, two species of euonymus, wild apples, several species of hawthorn, ferns, interesting plants from high alpine areas, and numerous herbaceous and bulbous plants.

"Seeds of Friendship"

Of the nearly three hundred species we

brought back, perhaps at least a third may prove to be new to cultivation in the U.S., and many others presently are very rare in gardens. It should be mentioned here that we made every effort to collect seed of rare species in the greatest quantities possible, and such seed will be shared through our *Index Seminum* (seed list) with other arboreta, gardens, and research institutes in this country and abroad.

In addition to those mentioned in the first part of this article, my warmest thanks are extended to the directors and staff of the Main Botanical Garden, Moscow, Frunze Botanical Garden, the Tashkent Botanical Garden, the Dushanbe Botanical Garden and the Sary Chelec, Arslanbob, Chatkal and Preoksko Terrace Preserves. Without the friendship and kind assistance of numerous research workers from all these institutions, the most memorable journey of my life would not have been possible. From the myriad impressions and experiences perhaps my feelings about this journey can best be summed up by my parting toast at the Arslanbob Preserve in Kirghizia: "May the seeds of Central Asia thrive in America. May they grow as the seeds of friendship, understanding, and cooperation between the peoples of our two great countries!"

Education Offerings

A varied Fall and Winter Education Program has been underway at the Arboretum since early October. It features ten one-day courses, one multi-session course, five evening slide talks, and three Sunday afternoon nature walks for people of all ages. Most of the classes and lectures take place at the newly-renovated Gifford House on Sharon Turnpike, now equipped as the Arboretum's Education and Visitor Center.

Courses scheduled during the remainder of the present term include: Energy Conservation and Solar Energy for the Homeowner, by Daniel Brown, November 5; Houseplants: Propagation, Care and Identification, by Paul Mihan and David Bulkeley, November 7, 14, and 21 (at the Greenhouse, Route 82); Flowers for the Winter Season, by Alex Pearl, December 1; Holiday Decorations Workshop, by Dawn Lange and Diane McConnell, December 3; The Cary Arboretum Research Library, by Fred Strum, December 21; Ski-Touring Workshop, by John and Jane Geisler, January 7; Trees and Shrubs in Winter, by Willard Payne, January 14; Water Pollution Workshop, by Peter Dykeman and Charles Shaw, January 21; Air Pollution Workshop, by Peter Dykeman, David Karnosky, and Charles Shaw, January 28.

Five slide talks by well-travelled staff members were scheduled for this semester. Those for the balance of the year are: Mysteries of Carnivorous Plants, by Thomas Elias, November 3; Ecologists Afield in Guatemala and Brazil, by Gus Tillman, November 10; Industrialization in Amazonia, by Robert Goodland, November 17.

A general-interest nature walk for people of all ages is scheduled for Sunday, November 6, starting at 3:00 p.m. at the Gifford House.

Further information on the education program is available by calling the new Education Office, 677-5358.

Three National Awards for the Arboretum Film

The Cary Arboretum's documentary film, "A Gift of Land," which stars its magnificent 2,000-acre tract in Millbrook, as well as its staff of educators and research botanists, has won its third nationally recognized award.

The Arboretum has been notified that the Film Council of Greater Columbus, Ohio, has selected the 25-minute documentary film for its Chris Bronze Plaque Award, being presented October 20 at ceremonies in Columbus.

Previously the film won a special jury award at the Twentieth Annual San Francisco Film Festival, and a certificate of merit at the Chicago International Film Festival.

The film shows the educational, horticultural, environmental, and botanical research work taking place at the Millbrook, New York, institution. Supporting roles in the film are played by elm seedlings, honey bees, wild ducks, a baby fawn, burdock stalks, and a garter snake.

The film is available for showings by organizations in the mid-Hudson area without charge. Arrangements can be made by writing the Public Affairs Department, Cary Arboretum, Box AB, Millbrook, New York 12545, or calling 914-677-5071.

Tours Now Available Sundays and Wednesdays

Visiting hours at the Arboretum have been expanded to include Sunday afternoons, as well as Wednesday afternoons. Guided tours are available from 1:30 to 3:30 p.m. both days. No advance reservations are necessary.

Tours begin at the greenhouse-nursery area on Route 82 just north of the State Police Barracks in Washington Hollow. A volunteer Arboretum guide leads visitors through this horticultural center, consisting of two greenhouses, irrigated nursery fields, a cold storage building for maintaining plants in winter dormancy, and a lath house that provides shade for tender, young plants.

The volunteers are: Winn Boeckel, Flo Fried, Phil Lo Presti, Rosemary Pelish, Concetta Ray, Ginny Sherman, Ruth Walling, Vera Walters, and Stan Zablocki. The Arboretum is deeply grateful to these dedicated – and very skilled – guides who contribute their time to the Arboretum.

After visiting the greenhouse-nursery area, visitors are welcome to participate in a self-guided tour of the remaining points of interest on the 2,000-acre Arboretum grounds.

The new public tours have been planned and coordinated by Dr. Peter Dykeman and Robert Hebb, both Arboretum staff members. There is a charge of $1.00 for adults and $.50 for children and senior citizens. Admission is free to members of Friends of the Cary Arboretum.

Dear Reader:

If you are not already enrolled as a Friend of the Arboretum, you are invited to join. Help to support our educational and research programs. For membership information call 914-677-5071.

Arboretum Plans Nature Trail

The Arboretum plans to build a two-mile nature trail that will make one of the loveliest sections of the Arboretum accessible for public enjoyment and instruction. Donations will be sought to help pay the cost.

In making the announcement, Dr. Willard W. Payne, Arboretum Director, said that the proposed trail will pass through beautiful stretches of meadowland, a hardwood forest, and the hemlock glen along the East Branch of Wappingers Creek.

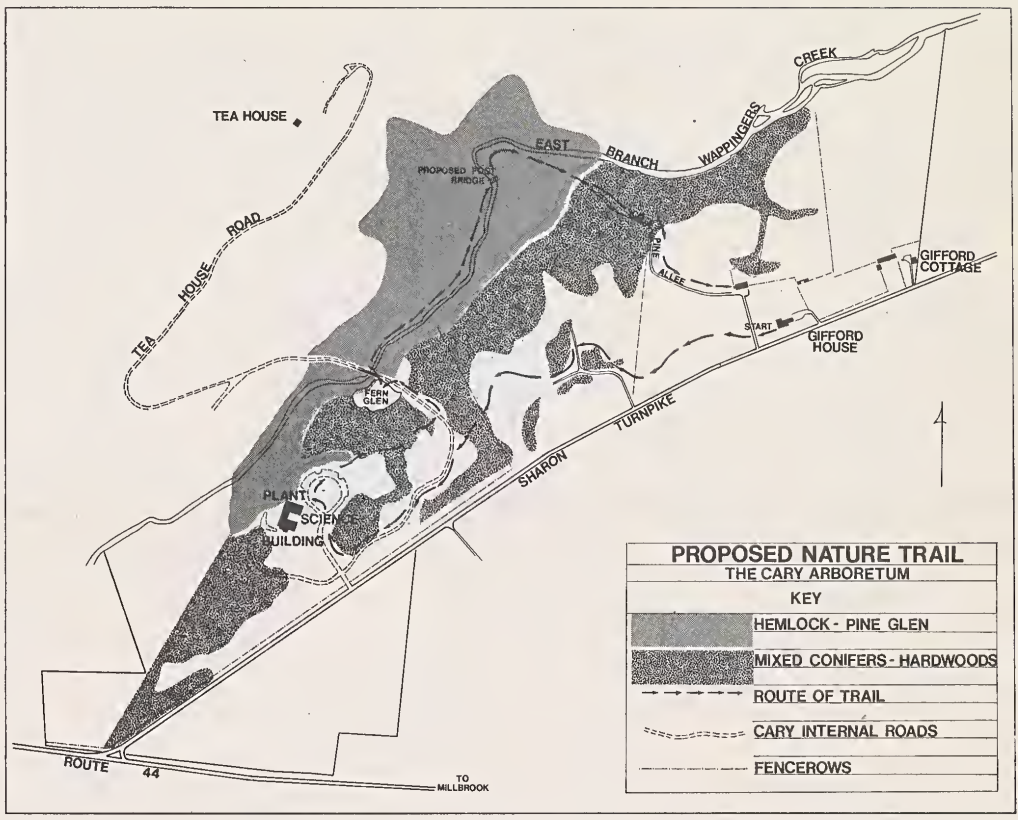
The walk will begin at the Gifford House Education/Visitor Center and will also lead to the Fern Glen, now under development, where the Arboretum will have one of the finest collections of fern species in the eastern United States. (see map)

Returning from the Fern Glen, visitors will be able to walk through a magnificent stand of virgin hemlock along the creek and a fragrant allee of Scots pines.

"In this short stretch," said Dr. Payne, "there is material for a hundred lessons in botany, forest science, and conservation, and uncounted opportunities for delight."

Construction will be kept minimal, but there will be essential development costs, including clearing of paths, a half-way point parking area for those unable to hike the full length of the trail, a bridge across the creek, a raised board-walk through the hemlock forest to protect the fragile forest floor, and descriptive signs and other guide materials.

When final cost estimates have been established, the Arboretum will invite contributions for the project.



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